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ABSTRACT

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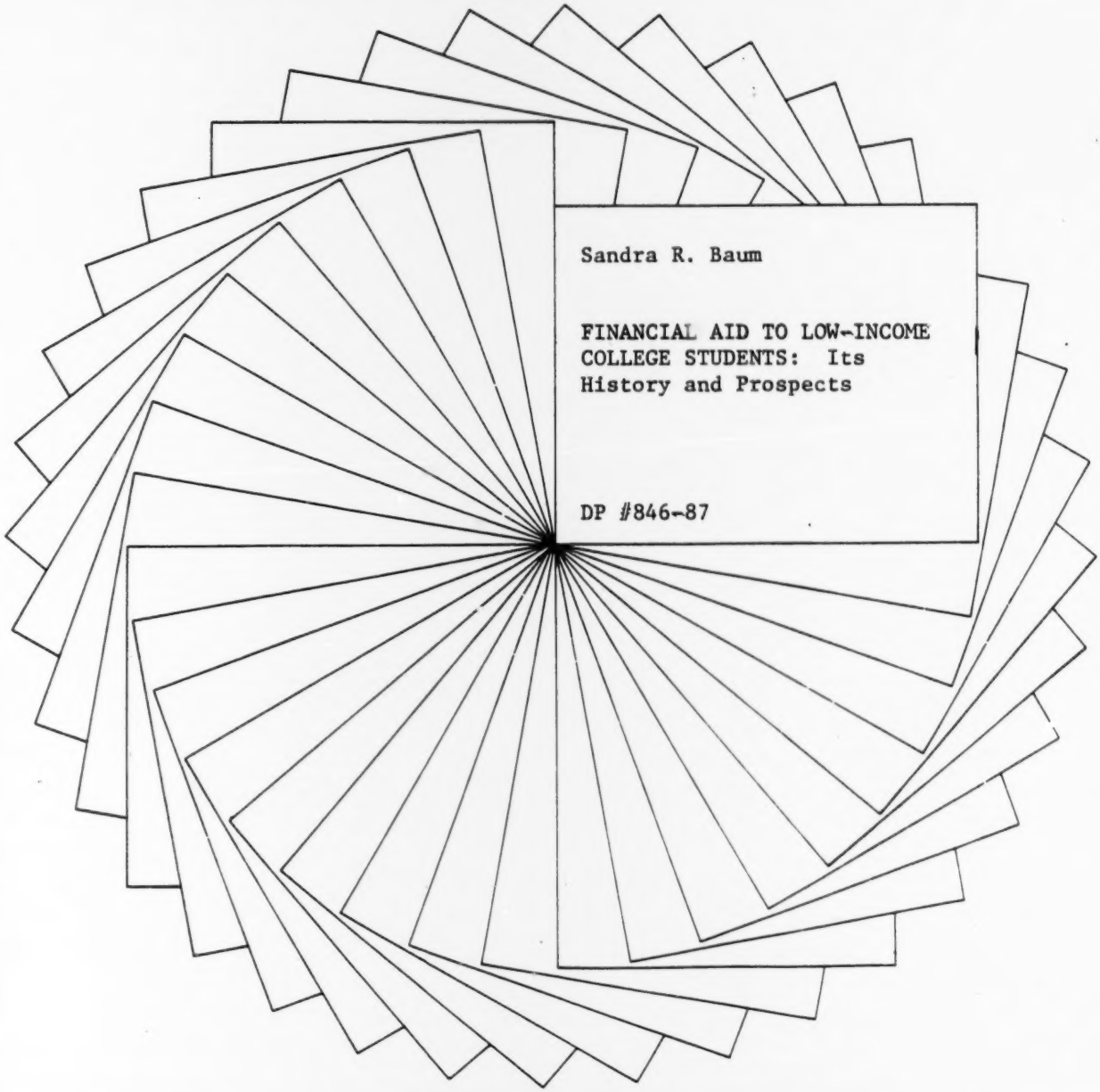

Sandra R. Baum

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FINANCIAL AID TO LOW-INCOME COLLEGE STUDENTS: ITS HISTORY AND PROSPECTS

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August 1987

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Abstract

After briefly sketching the history of federal aid programs for higher education, this paper employs the conceptual framework of fairness theory to analyze the extent to which financial limitations appear now to prevent high school seniors from attaining a college education. Using data from the High School and Beyond longitudinal study, this study finds that ability, measured by an achievement test administered as part of the survey, is a stronger determinant of entrance into and completion of a college education than is income. As past research has also indicated, socioeconomic status plays a strong role in promoting college education, but this paper concludes that income alone is not a major factor in limiting the pursuit of higher education.

Financial Aid to Low-Income College Students: Its History and Prospects

Federal financial aid to college students has become an integral part of the network of government policies designed to promote the American dream of equal opportunity for all citizens. Like food, shelter and medical care, education is often classed as a merit good, to which all members of society have a right. But unlike many of the other federal subsidies which have mushroomed since the mid-1960s, aid to college students is widely perceived as having fostered individual initiative and independence, rather than generating self-perpetuating dependencies on the system. In theory, subsidizing education should allow people to pull themselves out of poverty rather than just curing the symptoms of poverty.

The idea that the expansion of educational opportunities is a promising solution to the problem of poverty has pervaded economic discussion of the problem since the earliest days of economic theory.[1] Governments have long acted on this belief about the importance of education by requiring and providing elementary and secondary education and by subsidizing institutions of higher learning. Since the mid-1960s, the U.S. government has also supported a rapidly growing network of aid programs for college students, which reflects an extension of society's role to include support for individual students at both public and private colleges. While the motivations for the federal government's array of aid programs include international competitiveness, economic

productivity, and political expediency, equal opportunity and the opening of routes out of poverty are certainly prominent factors.

This paper investigates the effectiveness of financial aid policies for individual students in increasing educational and economic opportunities for low-income youths. Are the billions of dollars now being spent to broaden access to higher education facilitating upward mobility for young people from low-income families? Where should future funding be directed or, more realistically, what types of funding reductions are potentially most damaging? The first section of the paper contains a brief history of federal financial aid to college students. Part II addresses the question of the extent to which existing financial aid programs are successful in assuring access to higher education without regard to income. I approach this question through the framework of the economic theory of fairness, which leads to a focus on the prevalence of aspirants to higher education who are frustrated by financial constraints from attaining their goals. Because the data used are for 1980 high school graduates, I discuss the likely impact of recent changes in financial aid programs on fairness.

The third section of the paper goes beyond the issue of access to higher education to briefly address questions relating to the effectiveness of expanded educational opportunities in meeting the goals of greater equality of economic opportunity. I examine the issues of choice and persistence among low-income students in higher education, which are critical in determining the payoff to higher education. Finally, Part IV summarizes the findings and discusses possible changes and goals for the future in designing programs to increase the economic opportunities of low-income youth.

I. HISTORY OF FEDERAL AID PROGRAMS

Although primary responsibility for higher education has always rested with the states, the federal government has a long history of involvement in and support for colleges and universities. As early as 1787, some proceeds from public land sales were earmarked for the development of universities. In 1862, the Morrill Land Grant College Act gave federal lands to each state of the union for the purpose of building colleges which would teach agriculture and the mechanic arts. The ROTC program, instituted in 1925, was an early form of federal scholarship assistance. There was also a work-study program for college students during the Depression.

The federal role grew in the 1940s and 1950s, when broader groups of individual students were assisted in paying their college costs. The GI Bill of 1944 provided tuition and subsistence allowances to veterans of World War II and was later extended to cover veterans of other wars. The National Defense Education Act (NDEA) of 1958 instituted small fellowship programs for graduate students pursuing particular lines of study. This Act also created National Defense Education Loans (now National Direct Student Loans), which allowed undergraduate and graduate students to borrow at subsidized rates. Passage of the NDEA was in direct response to the Soviets' Sputnik success, which generated insecurity in this country about our ability to compete with Soviet scientific and technological progress. The express purpose of the funding, billed as an emergency four-year measure, was to develop the mental resources of American youth and to ensure an adequate supply of technical skills.

When the Eisenhower administration proposed the NDEA, it included the provision of grant aid for selected undergraduates. But at this time there was strong opposition to the notion of giving students a "free ride" and the final bill contained provisions only for loans. However, in addition to small fellowship programs for graduate students who would become teachers in the higher education system, there was provision for partial cancellation of debt for undergraduates who went into elementary and secondary school teaching.

These programs were designed to give preference to academically superior students and to those entering particular fields, not to guarantee equal opportunity. The concern was not over unequal access to higher education for young people of varying socioeconomic backgrounds, but rather a concern for efficiency. The nation was thought to be losing out because able young people were not continuing their educations or not entering the fields most vital to the development of the American economy. The minority who were arguing for providing scholarship aid to allow students with inadequate financial resources to attend college were defeated by the more widespread opposition to unearned handouts. Still, the NDEA was a major step toward what was to become a tradition of federal support for individual college students.

Support for outright grants grew during the early 1960s. The Kennedy administration advocated the inclusion of some scholarship aid based on both need and merit in proposed legislation in 1961, 1962, and 1963. But when the Higher Education Facilities Act of 1963 was passed, it included only funds for the expansion of campus facilities, not for student aid.

By 1965, the War on Poverty was in full swing and the supporters of federal grants to students finally won out. The first federal scholarships for undergraduate students were authorized in the Higher Education Act of 1965 (HEA-65). The Equal Opportunity Grants (later to become Supplemental Educational Opportunity Grants--SEOG) authorized by the 1965 legislation provided funds to students with "exceptional financial need." The bill also initiated Guaranteed Student Loans (GSLs), a program of federal loan insurance for educational loans made by states and private banking institutions. Another provision of HEA-65 transferred the College Work Study program (CWS), which had been created by the Economic Opportunity Act in 1964, from the Office of Economic Opportunity to the Office of Education. Under Work Study, the federal government provides up to 80 percent of student wages for on-campus jobs.

HEA-65 reflected a rising concern for the disadvantaged in the quest for higher education. Talent loss was no longer the major focus of the legislation. The changed social attitude toward poverty and society's responsibility for economic conditions had created concern over the imbalance in college attendance rates by race and family income.

Amendments to HEA-65 passed in 1966 and 1968 expanded the programs already in existence, but did not make major structural changes. The GSL program received a shot in the arm in 1969, when Congress provided for special allowances to lenders to supplement the interest they earned on the loans and to encourage them to make funds more widely available.

The next major step in student aid legislation was the implementation of Basic Economic Opportunity Grants (BEOG--now known as Pell Grants) with the Education Amendments of 1972. These grants were different from

earlier student aid, which had been distributed to institutions to allocate at their discretion. BEOG funds were provided directly to needy students to be used at the college of their choice. The 1972 legislation also instituted State Student Incentive Grants (SSIG). These are matching funds provided to states to encourage them to set up scholarship funds for needy students.

This legislation came after a series of reports from the Carnegie Commission and others, in the late 1960s and early 1970s, stressed the need for an extension of federal aid programs to maximize students' college choice options. In 1970, President Nixon had proposed a $1400/year guarantee to students, which would operate like a negative income tax. The time had not yet arrived, however, for acceptance of such a broad-based program.[2]

The original BEOG legislation provided for basic grants equal to $1200 minus any contribution the family could make to a student's education. A limitation of one half the cost of college was placed on the grant. Uniform regulations were set for determining expected family contributions. Unlike other entitlement programs, the BEOG program was designed so that each eligible student had the right to a prorated share of the funds allocated, rather than to a fixed amount per year.

Until 1978, when the Middle Income Student Assistance Act (MISAA) was passed, most aid was targeted on low-income students. Pell Grants went to students from families with incomes below $15,000, and GSLs had an income ceiling of $25,000. The MISAA extended both of these programs to students from families with higher incomes. The GSL program mushroomed

after 1978, when MISAA caused the number of loans per year to rise from 1.1 million in 1978 to about 3.5 million in 1981.

Legislation passed in 1980 continued the trend toward increasing generosity in student aid programs, but the Omnibus Budget Reconciliation Act of 1981 effectively repealed most of the student aid expansion which had been legislated in 1980. Among the new restrictions on GSLs was a requirement that students with family incomes above $30,000 demonstrate need in order to receive the loans, a 5 percent origination fee, and an increase in the annual minimum repayment amount from $360 to $600. At the same time, Social Security Survivors benefits for dependent college students were phased out and funding for Pell Grants was cut. Since 1981, the Reagan administration has included major cuts in financial aid programs in each budget proposal.

Congress has resisted most of the pressure, maintaining funding for grants and increasing loan funds. In 1986, Congress passed a Higher Education Act reauthorizing aid programs through 1991 and expanding the GSL, Pell Grant, and Work Study programs. The Reagan proposals that year would have cut Pell Grant funding dramatically. Again, the bill passed by Congress rejected many of the cuts proposed by the administration. It extends aid to students attending school less than half-time, who were not previously eligible, but makes it more difficult for students to declare themselves independent of their parents and requires them to maintain a C average in order to continue receiving aid. It enforces stricter eligibility requirements for student loans, while raising the limits on amounts individuals may borrow.

GSL loan limits, which had been $2500 a year, are increased to $2625 for freshmen and $4000 a year for other undergraduates. The limit for graduate students rises from $5000 a year to $7500. Total debt ceilings rise from $12,500 to $17,250 for undergraduates and from $25,000 to $54,750 for those who borrow for both graduate and undergraduate educations. All GSL borrowers, instead of only those from families with incomes above $30,000, will now have to pass needs tests, and the interest rate charged on GSLs rises from 8 percent to 10 percent beginning in the fifth year of repayment. GSL subsidies to banks are cut and GSL outlays are scheduled to remain at $3.2 billion in 1988, but to decline by $445 million over three years.

Fiscal year 1987 authorization levels for individual programs under the 1986 legislation are reported in Table 1. There is an increase from $3.6 billion to $4.6 billion for Pell Grants (compared to the administration proposal to cut funding to $2.7 billion). The annual limit on Pell Grants has been increased from $2100 to $2300 for 1987, and will rise by $200 a year thereafter, with a maximum of 60 percent of college costs. SEOG, NDSL, and SSIG limits have also been increased, and Work Study has been expanded to include proprietary schools.

The development of this elaborate menu of student aid programs over the last twenty years has, of course, channeled growing amounts of federal dollars into educational support programs. Table 2 shows available student aid from all sources for the years 1963-85, giving both current dollar and constant 1982 dollar figures. At the beginning of this period NDSL, aid to veterans, and a very small amount of other grant programs were the only federal aid funds, which totaled $190 million. By

Table 1

1986 Student Aid Authorizations
(Millions of dollars)

Program	Fiscal 1986 Appropriations	Fiscal 1987 Authorization
Pell Grants	$3,578	$4,600[a]
Guaranteed Student Loans	3,259	3,200[a]
Supplemental Educational Opportunity Grants	395	490
National Direct Student Loans	209	275
College Work-Study	567	656
TRIO (special services for the disadvantaged)	169	205
State Student Incentive Grants	73	85
Total	$8,250	$9,511

[a]No authorization ceiling is set for Pell Grants and Guaranteed Student Loans. Fiscal 1987 figures represent projected costs.

Source: Hook (1986), p. 2217.

Table 2

Student Financial Aid Available under Individual Programs, Selected Years, 1963-1985
(Millions of current dollars; 1982 dollars in parentheses)

Program	1963	1970	1975	1980	1985
Pell Grants	--	--	936 (1,629)	2,387 (2,660)	3,749 (3,298)
Supplemental Educational Opportunity Grants	--	134 (325)	201 (350)	366 (408)	396 (348)
State Student Incentive Grants	--	--	20 (34)	76 (85)	76 (67)
Work Study	--	227 (552)	295 (513)	658 (734)	693 (610)
National Direct Student Loans	114 (356)	240 (584)	460 (800)	695 (774)	841 (740)
Guaranteed Student Loans[a]	--	1,015 (2,466)	1,267 (2,204)	6,201 (6,811)	9,411 (8,280)
Social Security Survivors	--	499 (1,212)	1,093 (1,901)	1,883 (2,099)	0 (0)
Veterans' aid	67 (211)	1,121 (2,724)	4,180 (7,271)	1,714 (1,911)	746 (656)
Other grants	9 (27)	16 (39)	64 (110)	119 (132)	48 (42)
Other loans	--	42 (102)	45 (78)	61 (68)	248 (218)
Total federal	190 (594)	3,294 (8,004)	8,561 (14,890)	14,160 (15,682)	16,208 (14,259)
State grants	56 (176)	236 (574)	490 (853)	801 (893)	1,374 (1,209)
Institutional aid	300 (940)	965 (2,343)	1,435 (2,496)	2,138 (2,383)	3,426 (3,014)
Total	546 (1,710)	4,495 (10,921)	10,486 (18,239)	17,101 (18,958)	21,008 (18,482)

(Notes on next page)

Table 2, continued

Sources: College Entrance Examination Board (1986a), Gillespie and Carlson (1983).

[a]Includes PLUS, a supplemental loan program.

1970-71, the addition of SEOG, CWS, GSL, Social Security benefits, and other minor programs had caused federal aid to students to increase to $3.3 billion. Over the next decade, the introduction and rapid expansion of the Pell Grant program and the large increase in Guaranteed Student Loans were primarily responsible for the surge in available federal aid to $14.2 billion, a 100 percent real increase over the ten-year period.[3] Since 1980, real federal aid has declined by 10 percent, but increases in state and institutional aid programs have compensated for most of this decline, so total available aid has fallen only 3 percent in real terms.

The extent to which aid programs have been targeted on low-income students has varied over time. Table 3 contains information on the aid going to students of low and moderate income from 1972-73 through 1982-83 (1983-84 for Pell Grants). Because of MISAA, aid was more spread out from 1979 through 1981. The proportion of Pell aid going to students from low-income families (income less than $15,000 in 1984 dollars) rose from 60 percent in 1979-80 to 81.5 percent in 1983-84, after new restrictions had been imposed.

In 1972-73, 68 percent of SEOG funds went to very low-income students, but in the 1980s this figure has remained below 40 percent. In 1972, virtually all SEOG funds went to students with incomes below the median ($27,599 in 1984 dollars), but in the 1980s, about 35 percent of the funds have gone to students with family incomes above the median. Work Study and NDSL funds also remain less concentrated on low-income students than they were in the early 1970s.

In sum, the proportion of total aid going to low-income students has risen in the 1980s, but remains below early 1970s levels. In addition, the real value of average individual awards under federal financial aid

Table 3

Federal Aid to Students of Low and Moderate Income, Selected Years, 1972-1983
(Dollars in constant 1984 values)

	1972-73	1979-80	1982-83[a]
Pell Grants			
No. of awards	--	2,687,000	2,802,000
Proportion of funds to:			
Low-income students	--	59.8%	81.5%
Low- and moderate-income students	--	80.2%	95.4%
Average award:			
Low-income students	--	$1,281	$1,096
Overall	--	$1,173	$1,019
SEOG			
No. of awards	285,000	419,000	426,000
Proportion of funds to:			
Low-income students	68.2%	38.4%	37.6%
Low- and moderate-income students	98.5%	64.7%	65.1%
Average award:			
Low-income students	$1,161	$704	$541
Overall	$1,191	$750	$597
Work Study			
No. of awards	399,000	613,000	518,000
Proportion of funds to:			
Low-income students	50.7%	34.7%	37.5%
Low- and moderate-income students	83.9%	58.9%	63.0%
Average earnings			
Low-income students	$1,322	$819	$858
Overall	$1,253	$843	$850
NDSL[b]			
No. of awards	512,000	577,000	436,000
Proportion of funds to:			
Low-income students	37.1%	27.6%	29.8%
Low- and moderate-income students	69.7%	51.0%	57.7%
Average loan:			
Low-income students	$1,274	$813	$804
Overall	$1,380	$827	$851

(Notes on next page)

Table 3, Continued

Source: College Entrance Examination Board (1986b).

Note: Pell Grant figures are for all students. The figures shown for the other programs are for dependent students only (those supported by their parents); their income refers to family income. Low-income is defined here as below $15,000, moderate income below $25,000, in 1984 dollars. Median family income in constant 1984 dollars ranged over this period from a low of $25,216 in 1982 to a high of $28,085 in 1978.

[a]The Pell Grant figures are for 1983-84.

programs has declined steadily since the early 1970s (see Table 3). The expansion of the programs involved inclusion of larger numbers of students (although not consistently; see Table 4) rather than increased benefits for individual recipients.[4]

Widespread publicity about actual and threatened cuts in student aid notwithstanding, federal assistance programs for college students are a well-entrenched part of public policy. Information on the effectiveness of these funds in increasing educational opportunities is critical to policy evaluation.

II. ACCESS TO HIGHER EDUCATION

The federal government provided $14.2 billion in aid to postsecondary students in 1980-81 (Table 2). The addition of state grant programs and institutionally awarded aid yielded a total of $17.1 billion in total student aid. By 1985-86, federal aid had fallen almost 10 percent in real terms, but still amounted to $16.2 billion. State and institutional aid had compensated for most of the federal decline, and total aid amounted to $21 billion in 1985-86, assisting approximately six million students.[5]

The debate about whether this level of aid is inadequate or overly generous and how the aid package should be divided between grants and loans is ongoing. The discussion is not adequately informed by reliable evidence on the effectiveness of existing aid policies, although several studies have addressed this issue. It is true that between 1972 and 1982, growth in college attendance was particularly rapid for nonwhites (85 percent), for two-year institutions (73 percent), and for part-time

Table 4

Proportion of College Freshmen
Receiving Aid, 1975-1984

	1975	1980	1984
Pell	27%	33%	20%
SEOG	6	8	6
State Grants	19	16	14
College Grants	9	13	17
GSL	10	21	23
NDSL	10	9	6
College loans	3	4	4
Work Study	12	15	9

Source: Statistical Abstract of the United States, 1985, p. 151.

students (66 percent), compared to an overall increase of 35 percent (National Center for Education Statistics, 1985, p. 98).[6] Since all of these groups include disproportionate numbers of low-income people, it is reasonable to conclude that the proliferation of aid programs has increased low-income college attendance. There is some evidence, however, that the financial aid programs have not raised enrollments for low-income students.

Hansen (1983) found that the percentage of college students coming from families with incomes below the median did not increase over the 1970s. His results indicate that the ratio of enrollment rates for below-median-income students to enrollment rates for above-median-income students declined for all race/sex groups between 1971-72 and 1978-79.[7] These results generated considerable doubt about how effective financial aid programs are in encouraging low-income students to attend college. Manksi and Wise (1983), on the other hand, estimated that BEOG grants increased low-income freshman enrollments by up to 59 percent, with the new entries almost entirely into two-year and vocational institutions. Several other studies of college choice have considered the impact of financial aid on attendance.[8] The general consensus is that financial aid has a positive but limited impact on low-income student enrollments.

Most existing results are based on behavioral models of the college choice decision. Despite considerable progress in the development of these models, serious questions remain about their ability to explain and predict the role of aid in influencing educational decisions. Many of the problems are the result of inadequate data availability.

This study takes a different approach to analyzing the effectiveness of student aid. I take existing aid policies as given and ask how many

students remain frustrated in their attempts to attain higher education because of financial limitations. While the results do not indicate how many students have already been induced by aid programs to attend college, they do suggest the extent to which expanded aid programs have the potential to increase college attendance rates above current levels.

The theoretical framework for this inquiry comes from the economic "theory of fairness." A growing body of economic literature has developed this theory, which defines "fair" distributions as those distributions in which no agent envies the allocation received by any other agent. Most of the fairness literature deals with the theoretical properties of fairness.[9] Recently, however, attempts have been made to apply the theory to empirical issues. Baumol (1986) uses fairness theory to evaluate peak-pricing, rationing, and other pricing policies. Baum and Schwartz (1986) apply fairness theory to access to higher education. The discussion which follows builds on the results from the latter work.

Fairness Theory

First, a basic understanding of fairness theory is required. For a more detailed discussion, see Varian (1975) or Baumol (1986). As stated above, fairness is defined as the lack of envy. A distribution is considered fair if no individual prefers any other individual's allocation to his own. Because of differences in preferences, unequal division of initial endowments does not necessarily create an unfair situation. In the simplest version of fairness theory, the problem being posed is how to allocate a fixed bundle of goods. A "fair" solution to this pure trade problem is to give each agent an identical endowment and then to allow trading to take place under competitive conditions. In the

resulting equilibrium, each individual's utility will be at least as high as it would be if he had any other individual's consumption bundle.

When we move beyond a pure exchange economy and allow agents to produce as well as consume, the issue of how to divide labor power equally among the economic agents arises. (The term "labor power" includes all potentially productive attributes of individuals, such as intelligence, strength, creativity, and adaptability.) An equal division of aggregate labor power may imply giving agent A control over part of the labor power of agent B, which violates the right of agent B to the ownership of her own labor power.

Following Varian (1975), I deal with this problem of nontransferable and differing abilities by defining a "wealth-fair" allocation. Rather than comparing his current consumption-labor bundle to agent A's current consumption-labor bundle, agent B compares the labor required of him to produce his current allocation of goods to the labor which would be required of him to produce what agent A produces. The question is not whether B would prefer to consume what A consumes, but whether B would prefer to consume what A consumes and produce the resources necessary to acquire A's consumption bundle, given B's abilities.

This approach to the problem of differing abilities leads us to disallow envy of unattainable states. For example, agent B is not allowed to envy agent A's ability to run swiftly. Of more immediate concern, if agent B does not have the intellectual capacity to participate in higher education, he cannot envy A's higher education. If relatively low academic ability increases the effort required of him to successfully continue his schooling, he cannot envy the ease with which A gets a

college education, but he can envy A's education if he (B) is willing to make the effort but does not have the requisite financial resources.

The appropriate methodology for using fairness theory to evaluate access to higher education is not immediately obvious. First of all, the theory describes perfectly fair allocations, but does not rank unfair allocations. If we make the realistic assumption that financial aid policies have not totally eliminated financial constraints to college attendance, we require a method for evaluating the degree of unfairness of the existing allocation of higher education. The most pragmatic solution is to count the remaining cases of envy.[10] Accordingly, I define a fair policy as one which reduces the number of cases of envy in the economy.[11]

In practice, I count the number of people who would like to consume the good in question--a college education--but are unable to because it is beyond their ability to pay, even with prevailing financial aid programs, which were at their peak in 1980.

The budget constraint for individual A defines a feasible set of commodities which includes all those consumption bundles whose total cost is less than A's income level, given the existing set of prices. All bundles which A could obtain by making different labor-leisure choices belong to the feasible set. The feasible set includes only those bundles which contain adequate quantities of necessities such as food, clothing, and shelter. "Adequate" might be defined with reference to a government-determined minimum standard of living.

Another hurdle in applying fairness theory to the evaluation of aid policies is that envy is usually defined in a general equilibrium context. That is, A envies B's entire consumption bundle, not any single

item in it. We are interested only in A's preferences for one commodity in B's consumption bundle--higher education.

The fact that a single item (such as higher education) appears in the bundle B chooses to consume, but not in the bundle A chooses to consume, does not imply that A envies B. Suppose A and B have different tastes, but face the same economic constraints and therefore the same feasible set. B may choose to go to college while A chooses to work as a mechanic. A could have gone to college but has simply made another choice. In this case, A does not envy B, since the item in question is part of a bundle of goods which lies within A's feasible set. In terms of the discussion above, the allocation is wealth-fair. A necessary condition for A envying B's consumption of X is that all allocations including X lie outside A's feasible set.

Feasible sets are defined primarily by individual income and prices which are, in principle, observable. However, deciding whether a good lies outside the feasible set of any particular individual is troublesome because of the difficulty of specifying the constraints which define the feasible set. In addition to income and observed prices, there are individual-specific, nonmonetary factors which limit consumption opportunities. These factors may be interpreted as differential prices of consumption goods.

Standard models of college choice use tuition and living costs to represent price. This price is constant across individuals. But the cost of attending college is higher to someone who lives a hundred miles from the nearest school than to someone who lives five minutes away. The cost is higher to a student with ailing parents for whom he must care, or for a student with small children. Most important for our empirical

work, a student with relatively low ability may need to expend more time and effort to reap a given level of benefits from a higher education than a student with relatively high ability. This extra time will make higher education less attractive to low-ability students.[12] Because the real price of college attendance varies across individuals, we cannot conclude that two people who make different choices about going to college have different educational aspirations, even if they have the same income and face the same observed prices.

These nonmonetary restrictions can also be interpreted as time constraints. All of the circumstances listed above impose demands on an individual's time, limiting the time available for the consumption of other goods, and thus limiting the relevant feasible set. Thus, in defining envy, it is necessary to define carefully the feasible set. We consider not only nominal budget constraints, but also differential prices and time constraints.

I distinguish among three different types of constraints. First, some constraints are the result of human characteristics which are nontransferable and which make the consumption of the good unattainable. When the good is unattainable, as would be the case for a student who is intellectually unable to complete further years of education, envy is disallowed since no government policy can remedy the situation. Second, some constraints are the result of previous choices by the individual himself. An individual who is constrained from purchasing good X because she must make large loan payments on her Mercedes should not be counted as envying someone else's consumption of X. The third type of constraint does generate envy. These constraints are the result of the economic choices of others, outside the control of the person in question. For

example, the family income available to a college student may constrain his access to higher education. In these cases, we allow envy, since the student presumably had no control over labor-leisure choices contributing to the family income level and government financial aid for these students can supplement their family incomes to make higher education available to them.

In general, I define envy for X as existing whenever X lies outside an individual's budget constraint. But there is no envy when no policy could place X inside the budget constraint (as would be the case for those with very low academic ability) or when X lies outside the budget constraint because of previous choices made by the individual.

In moving from a theoretical definition to an empirical examination of envy of access to higher education, we must ascertain whether college is in A's feasible set. The population of high school graduates should in principle be divided into three groups:

1. Higher education lies in their feasible sets and they choose to enroll.

2. Higher education lies in their feasible sets, but they choose not to enroll.

3. Higher education lies outside their feasible sets.[13]

We cannot directly observe each individual's feasible set, since we cannot directly observe the nonmonetary factors which play a part in determining the budget constraint.[14] However, the group of those who actually consume the good are clearly not enviers. The problem becomes one of identifying the second and third groups. Among those who do not consume higher education, we need to distinguish those who want to do so but cannot from those who could do so but choose not to.

Because of the impossibility of defining individual utility functions and of measuring utilities, we cannot actually compare the utilities of two alternative consumption bundles for an individual. An alternative method of determining preferences is required.

I resort to the use of survey data. These data provide the only available information for identifying enviers. Survey techniques, however, are fraught with difficulties. While survey questions can be employed to ask high school students if they want to go to college, interpreting such a "want" is notoriously difficult. If X is a "good," (something yielding utility), and if X is truly costless, then according to standard economic theory, all individuals "want" more of X. If X has a positive cost, the only meaningful definition of "want" from this perspective is a revealed preference--the actual consumption of X, given its price and the individual's income. Revealed preferences are, however, inadequate to the task of defining envy in X, since one of the conditions for envy is that X is not actually consumed.

Empirical Analysis

The High School and Beyond (HSB) survey is a large-scale longitudinal study of high school sophomores and seniors conducted by the National Center for Education Statistics (NCES, 1983). Base-year data were collected in the spring of 1980 from approximately 60,000 high school seniors and sophomores. At that time, information was also collected from a random subsample of parents. In the spring of 1982, follow-up data were collected from 12,000 of the 1980 seniors. Parental information is available for 1,996 of the seniors. I base my analysis on that

subsample. (For a comprehensive summary of the HSB data, see Jones, Clarke, and Mooney, 1983.)

To identify members of the three categories discussed above, I divide the students into three corresponding groups according to their survey responses. Groups 2 and 3 may actually include both enviers and nonenviers, as their subdivision bellow indicates:

1. Those who say they want to go to college and are observed later to do so.

2. Those who say they don't want to go to college.[15]

   a. Those for whom college is in their feasible sets, but they choose not to go.

   b. Those for whom college is not in their feasible sets. Recognizing this, they have not expressed the desire to go. These are actually enviers.

3. Those who say they want to go to college, but do not do so.

   a. Those who later considered the costs and benefits of college and chose not to attend.

   b. Those who found that college was not in their feasible sets. These are enviers.

There are a number of questions on the survey which provide information about students' college aspirations. We define a high school student as "wanting to go to college" if they (1) indicate that they want to go to college within the next two years; and (2) say they will be disappointed if they do not graduate from college.[16] Using follow-up data collected 21 months later, we observe whether each student has attended a two- or four-year college after graduating from high school.

Recognizing the difficulty of interpreting these survey responses, I use them to divide the sample into groups 1, 2 and 3 above. For example,

if the individuals wanted to go to college but have not done so, they are counted as potential enviers. On the basis of this classification, 263 of the 1996 individuals in our sample, or 13 percent, are potential enviers.

But the survey data cannot help us to distinguish between 2a and 2b, or between 3a and 3b. I therefore begin with the assumption that all those in group 3, who say they want to go to college but don't, are enviers, and that they are the only enviers. All those in group 2, who say they don't want to go, are assumed to have chosen not to continue their educations, and thus not to be enviers. Basically, I use the survey questions to eliminate those who could go to college but have chosen not to attend (group 2a). The extent to which our count of enviers is inaccurate because of the existence of enviers in group 2b and nonenviers in group 3a will become evident through the analysis of the characteristics of these individuals below.

Table 5 contains descriptive statistics for the full sample of 11,227 students in the 1982 follow-up survey as well as for our sample of 1996 students, whose records contain information on parents' characteristics. Our definition of envy was applied only to these 1996 records. Table 5 breaks this group down into its components of 2623 enviers and 1733 nonenviers.[17]

Columns (3) and (4) show that there are significant differences between enviers and nonenviers. Whereas 15.6 percent of the enviers were married in 1982, only 6.6 percent of the nonenviers were married. About 16 percent of the enviers, but only 9.4 percent of the nonenviers, were

Table 5

Descriptive Statistics for Enviers and Nonenviers

	Full Sample (1)	All Respondents with Parental Information (2)	Enviers (3)	Nonenviers (4)
Sample size	11,227	1,996	263	1,733
Married (1982)				
Yes	10.0%	7.8%	15.6%	6.6%
No	89.4	91.8	83.7	93.1
Dependents				
None	85.2	88.8	84.0	89.6
Some	13.7	10.4	16.0	9.4
Parental income quartile				
Lowest	NA	24.3	31.9	23.2
Second	NA	25.5	30.4	24.7
Third	NA	24.9	19.4	25.8
Highest	NA	25.3	18.3	26.8
Rural Residence				
Yes	12.9	13.2	16.7	12.7
No	82.7	83.3	77.2	84.3
Race				
White	63.0	77.3	69.2	78.5
Nonwhite	36.3	22.7	30.8	21.5
Sex				
Male	46.3	43.1	39.9	43.6
Female	53.5	56.9	60.1	56.4
In armed forces				
Yes	4.7	3.5	4.6	3.3
No	90.5	92.8	93.6	93.4
Ability quartile				
Lowest	28.4	23.9	34.6	22.3
Second	19.7	22.1	27.4	21.3
Third	18.2	24.9	23.6	25.1
Highest	19.2	29.1	14.4	31.3

Source: High School and Beyond data; computation by the author.

Notes: Totals may not add to 100% because some individuals did not answer all questions and were coded as missing. The sample does not break into four groups of 25% each because of bunching of scores at quintile limits.

supporting dependents. Only about 18 percent of the enviers had parental income in the highest quartile, compared to 26.3 percent of the nonenviers. Almost 32 percent of the enviers were in the lowest parental income quartile, compared to 23.2 percent of the nonenviers. The enviers were more likely to live in a rural or farming community (16.7 percent as opposed to 12.7 percent for nonenviers), more likely to be nonwhite (30.8 percent versus 21.5 percent), and more likely to be female (60.1 percent versus 56.4 percent). The ability test administered to all respondents as part of the HSB survey indicated that 14.4 percent of the enviers were in the highest ability quartile, while 34.6 percent were in the lowest.[18] By contrast, 31.3 percent of the nonenviers were in the highest ability quartile and 22.3 percent were in the lowest.

As discussed above, I have not counted as enviers those students who express no desire to acquire a college education. If some of these students have failed to express a desire to continue their educations because they recognize that this option is outside their feasible sets (groups 2b), they should, in principle, be counted as enviers. To get a sense of how large this group might be, I analyze a descriptive regression in which the dependent variable takes the value 1 if a student expresses a desire to go to college and 0 if he does not. If low aspirations of those in group 2 are the result of internalized constraints, we would expect low incomes, rural locations, and other variables increasing the price of a college education to be significant determinants of nonaspiration. As indicated in column (1) of Table 6, however, these variables are not important determinants of aspirations. Measured ability level exerts a stronger influence on the expression of aspirations than any other variable tested.

Parents' educational levels are positively correlated with aspirations, and other family background variables are also significant in aspiration formation. But family income is not significant. I conclude that financial limitations do not appear to influence whether or not students express a desire to continue their educations. These are important findings, since they suggest that the strongest factor determining college aspirations is low measured academic ability, rather than internalized constraints.[19] That is, group 2b, and therefore our undercounting of enviers, is likely to be small.

We have noted that we may, on the other hand, have overcounted enviers, since some of those counted as potential enviers may actually have chosen not to attend. To get a sense of how large this group is, using the sample of college aspirants I analyze a descriptive regression in which the dependent variable takes the value 1 if a student is a potential envier and 0 if he is not. If factors such as parental income and rural residence are the most important determinants of envy, as suggested by the simple comparisons of means in Table 5, then I will conclude that group 3a is small, and most of the potential enviers were actually constrained from attending college. On the other hand, if measured ability is a strong factor determining which of those expressing the desire to continue their educations end up as enviers and which end up going to college, I will conclude that I have, in fact, overcounted enviers. That is, many students who thought they wanted to continue their educations chose not to attend college when they actually weighed all the costs and benefits, and group 3a is large relative to group 3b.

Column (2) of Table 6 presents the results. Measured ability carries a significantly higher weight than any other variable, and is, in fact,

Table 6

Determinants of Aspirations for Higher Education and Envy

Independent Variables	Coefficient Estimates (t-statistics in parentheses) Aspirations (1)	Envy (2)
Ability quartile (1=lowest)	0.105 (10.1)	-0.102 (8.9)
Parents' income (thousands of dollars)	0.015 (0.0)	-0.184 (0.9)
Father's education (some college=1)	0.111 (4.6)	-0.042 (1.7)
Mother's education (some college=1)	0.062 (2.4)	-0.037 (1.5)
Rural high school	-0.028 (1.2)	0.042 (1.6)
Northern high school	-0.007 (0.0)	0.050 (1.7)
Western high school	-0.030 (1.0)	0.033 (1.1)
Eastern high school	0.023 (0.8)	0.052 (1.7)
Jewish	0.114 (1.7)	0.014 (0.2)
Catholic	0.054 (2.9)	0.004 (0.2)
Race (white=1)	-0.077 (2.7)	-0.015 (0.5)
Sex (male=1)	-0.057 (2.8)	0.016 (0.7)
Number of vocational education courses	-0.011 (2.1)	0.010 (1.9)
Constant	0.418	0.465
Sample size	1,996	1,310
Mean of dependent variable	0.66	0.20
R-squared	0.13	0.11

Source: See Table 5.

the only statistically significant variable. Neither family income nor rural residence is significant in determining which students who express educational aspirations actually attend college.

These results lead to the conclusion that very little envy actually exists in access to higher education. Many of the students who do not attend college (including those who said they wanted to go to college) have made their decisions because low academic ability makes the benefit of a college education less than the costs. This conclusion does not assume that these individuals are incapable of continuing their educations or that they would necessarily expend greater effort in school if they attended than do their peers with higher levels of academic preparation. They would, however, have to exert themselves more in order to attain any given level of achievement in a particular program requiring academic skills.

Yet if envy of access to higher education is not, according to our definition, a widespread phenomenon, it is important to note that even in 1980, at the peak of federal funding for financial aid programs, attendance rates varied considerably by income. Only 46 percent of 1980 high school graduates from families with incomes below $12,000 continued their educations, compared to 60 percent of those with family incomes of $20,000 or more (see Table 7). The discrepancy appears greater when the population is divided into socioeconomic status quartiles. The difference is that parental education and occupation, in addition to income, enter into SES. 84.3 percent of the highest quartile and only 38 percent of the lowest attended college. However, consistent with the results obtained above, a significant part of this difference can be explained by

Table 7

College Attendance Rates by Income, Socioeconomic Status, and Measured Academic Ability

	Percentage with Some Postsecondary Education
Parental income	
Less than $12,000	46.0%
$12,000-19,999	55.4
$20,000 or more	59.9
Socioeconomic status quartile	
Lowest	38.1
Second	47.0
Third	63.0
Highest	82.9
Ability quartile	
Lowest	30.8
Second	46.9
Third	64.8
Highest	84.1
Total	57.2

Source: High School and Beyond Data, computations by the author.

differences in measured ability. Table 8 shows that among those in the highest ability quartile, about 76 percent of those with incomes below $12,000 and 88 percent of those with incomes above $20,000 attended college. For the lowest ability quartile, the figures were 31 percent and 34 percent respectively. This suggests that most students with low measured academic ability choose not to attend college even if they can afford it. It is interesting to note, however, that this result is weaker when low ability students are broken down by SES instead of income. Over 50 percent of the highest-SES/low-ability students went to college. Again, the implication is that nonmonetary family background variables are the most significant factors contributing to these differential rates.

The potential for federal aid to reduce the differential in college attendance rates among income classes rests on its ability to reduce the price of higher education. Bishop (1977) found that the price elasticity of demand was lowest for those with very low or very high ability rankings. This is consistent with our judgment that those with extremely low ability are not enviers, and would not change their behavior in response to small increments in financial aid. It is also consistent with the observation that most high-ability students already attend college.

Recent Changes

Although total real financial aid fell only 3 percent between 1980-81 and 1985-86, several factors combine to create the possibility that the number of enviers may have increased significantly in the 1980s. These include changes in the relative weights of government as opposed to

Table 8

College Attendance Rates for Income/Ability and SES/Ability Groups

	Ability Quartile			
	Lowest	Second	Third	Highest
Attendance Rates by Income/Ability Groups				
Income:				
Less than $7000	31.1%	50.2%	50.6%	79.3%
7000-11,999	31.6	36.1	59.0	73.8
12,000-15,999	28.5	40.5	48.1	70.0
16,000-19,999	25.7	42.7	58.9	81.2
20,000-24,999	31.0	48.2	68.4	83.7
25,000-37,999	36.5	60.0	75.1	87.1
38,000 or more	33.8	67.0	82.0	92.7
Attendance Rates by SES/Ability Groups				
SES Quartile:				
Lowest	28.9	36.2	48.0	62.3
Second	24.3	39.3	57.2	71.9
Third	35.1	52.9	65.5	86.2
Highest	51.4	69.1	84.7	92.6

Source: High School and Beyond Data, computations by the author.

institutionally awarded aid; changes in the average value of awards to low-income students; changes in the grant/loan ratio in the total aid package; and changes in aid as a percentage of college costs and college costs as a percentage of income.

Table 9 shows changes in nominal and real aid levels under individual programs from 1980 to 1985. Total real federal aid fell 10 percent over this period, while state aid increased 35 percent and institutionally awarded aid rose 26 percent. As a result, institutional aid rose from 12.5 percent to 16.3 percent of total student aid. Institutional aid is distributed at the discretion of the individual financial aid officer and is more likely to be influenced by academic merit, athletic abilities, race and other non-need characteristics than is government aid. It is reasonable to assume that a lower proportion of financial aid goes to low-income students as the federal contribution to the aid package diminishes.

On the other hand, because of the repeal of many provisions of MISAA, federal funding--which is still 77 percent of total aid--has become more focused on low-income students (see Table 3). Of Pell Grant funds, 81.5 percent went to students with incomes below $15,000 in 1983-84, compared to 59.8 percent in 1979-80. For campus-based programs (SEOG, CWS, NDSL) the change was smaller--rising only from 33.0 percent to 34.8 percent. Comparable data are not available for GSLs, but the imposition of needs-testing for those with incomes above $30,000 has presumably caused funding for this program to be more concentrated on low-income students.[20]

Although low-income students are getting a larger share of federal funds in the 1980s, the pool has been shrinking rapidly enough to reduce

Table 9

Changes in Available Aid, 1980-85

Program	% Change	
	Nominal	Real
Pell	+57.06	+23.98
SEOG	+ 8.20	-14.71
SSIG	0.00	-21.18
CWS	+5.32	-16.89
NDSL	+21.01	- 4.39
GSL & PLUS	+51.77	+19.81
Social Security	-100.00	-100.00
Veterans	-56.48	-65.67
Other grants	-59.66	-68.18
Other loans	+306.56	+220.59
Total federal	+14.46	- 9.64
State grants	+71.54	+35.39
Instit. aid	+60.24	+26.48
TOTAL	+22.85	- 3.02

Source: College Entrance Examination Board (1986a).

their real benefits, even without adjusting for the increase in college costs. Between 1979-80 and 1983-84, average Pell awards for students with incomes below $15,000 fell from $1281 to $1096 in 1984 dollars. Average benefits under campus-based programs for dependent undergraduates in this group fell from $781 in 1979-80 to $733 in 1982-83 (see Table 3).

Another factor which may have adversely affected low-income enrollments in the 1980s is the rapid increase in the loan/grant ratio. While loans constituted 40.7 percent of aid in 1980-81, and grants were 55.5 percent (work aid was 3.9 percent), by 1985-86 the share of loans had increased to 50 percent and grants were only 46.7 percent (see Table 10). This change may be particularly significant for students from low-income families, who tend to be most reluctant to incur debt.

Finally, aid per student has declined in the 1980s, even before adjusting for inflation. Aid per full-time equivalent student was $1983 in 1980-81 and had fallen to $1778 by 1983-84. This constituted a 23 percent real decline (from $2210 to $1693 in 1982 dollars) (Gillespie and Carlson, 1983, p. 20). At the same time, college costs have risen relative to median family income in the 1980s. The greatest increase is for private universities, where cost as a percentage of median family income has gone from 31.2 percent to 38.7 percent, and for private colleges, where it has risen from 25.0 percent to 29.6 percent. For public universities, colleges, and two-year institutions the ratios have increased more slowly, from 12.9 percent to 14.7 percent, from 11.5 percent to 13.3 percent, and from 9.6 percent to 10.6 percent, respectively (College Board, 1986a, p. 11). Since low-income students are concentrated in two-year public institutions, this change may have had more impact on choice of institutions than on access to the educational system.

Table 10

Composition of Total Aid,
1980-81 and 1985-86

	Grants	Loans	Work
1980-81	55.5%	40.7%	3.9%
1985-86 (est.)	46.7	50.0	3.3

Source: College Entrance Examination Board (1986a).

Given these changes in aid packages, it is quite likely that there are now more enviers than there were among 1980 high school graduates. That is, more members of the high school classes graduating in the mid-1980s than of the high school class of 1980 have probably been constrained by financial considerations from continuing their educations. Given the apparent role of low levels of measured ability or academic preparation in deterring high school graduates from continuing their educations, it would be useful to know how changes in secondary education have affected the distribution of low scores. General economic trends, changes in standards of postsecondary institutions, and modifications in financial aid programs may also have affected attendance patterns among less well-prepared students. Inquiry into these issues is left to future research.

III. COLLEGE CHOICE AND PERSISTENCE

The analysis of the preceding section suggests that there are not many high-school graduates who are financially unable to enter some institution of higher learning if they so desire, although the recent decline in federal aid may have increased this population somewhat. Even if we accept that financial aid policies, combined with other forces which have increased college attendance over the last twenty years, now assure access to higher education, we cannot necessarily conclude that the equal opportunity goals are being achieved. If low-income students are concentrated in two-year colleges with relatively low academic standing or if they are very likely to drop out of college before

receiving degrees, providing access may not be significantly increasing long-run economic opportunities for many of these students.

Thorough analysis of these issues requires reliable information on which students actually continue their educations because of the availability of aid. For this population, data are needed on types of schools attended and persistence rates. In addition, the payoff rates for varying lengths of study at the various types of institutions must be calculated. Such in-depth analysis is beyond the scope of the present study.

It is possible, however, to get a general idea about the potential influence of choice and persistence on the effectiveness of aid policies in achieving their long-run goals. To do this, I examine attendance patterns and dropout rates for the HSB sample of 1980 high school graduates.

While a finer division of institutions would be required for a detailed study of college choice, the division of postsecondary schools into four-year and two-year categories provides a first step towards determining the types of schools attended by different subgroups of the student population. In general, four-year schools are more selective and more academically oriented than are two-year schools. Obviously, they also confer higher-level degrees, although graduates of two-year schools frequently transfer into four-year colleges to earn bachelor's degrees.

The standard wisdom is that lower-income students are more likely to attend two-year institutions, while higher-income students are more concentrated in four-year colleges. In fact, in the HSB sample, this pattern emerges clearly only among students in the lowest measured ability

quartile, where 28-29 percent of those from families with incomes below the median attend four-year institutions, compared with about 36 percent of those from higher income families (see Table 11). At all income levels, higher-ability students are more likely to attend four-year schools. This is at least as true--and in some cases more true--for low-income students. That is, the type of school attended is more closely related to measured academic ability than to income. These data suggest that among high school graduates who do go to college, financial limitations do not limit choices to two-year schools for many students. Low ability or poor academic preparation, in contrast, does apparently dictate attendance at two-year schools for many young people.[21]

The differences in the results when students are broken down by SES instead of income are compatible with the distinction found between the roles of income and SES in the preceding section of this study. At all ability levels, students from higher SES quartiles are more likely than those from lower SES quartiles to go to four-year institutions. Within each SES group, attendance at four-year schools again increases with ability. As in the college attendance results discussed above, family background and academic ability seem to play a greater role than finances in determining the type of institution attended.

This finding suggests that students with the ability, preparation, and educational aspirations to attend four-year institutions will do so even if they come from low-income families and are dependent on financial aid to continue their educations. This limited evidence does not support the notion that aid-induced students attend lower-quality schools and are thus likely to reap minimal benefits from their postsecondary educations.[22]

Table 11

Percentage of Fall 1980 College Entrants Attending Four-Year Institutions, by Income/Ability Groups and Socioeconomic-Status/Ability Groups

Ability Quartile	Income Level		
	Less than $12,000	$12,000 $19,999	$20,000 or more
Lowest	27.9%	29.1%	36.3%
Second	45.4	34.0	33.6
Third	45.0	44.5	48.3
Highest	63.0	60.2	67.1

Ability Quartile	SES Quartile			
	Lowest	Second	Third	Highest
Lowest	37.4	38.1	40.6	43.1
Second	43.3	44.2	52.2	61.3
Third	55.0	58.3	56.1	65.4
Highest	67.3	67.4	75.6	81.8

Source: High School and Beyond Data, computations by the author.

Those students who do enter two-year institutions are much more likely to dropout before completing a degree than are students in four-year schools. Table 12 shows dropout rates at both types of institutions for the HSB sample. Individuals were counted as dropouts if they had entered college in Fall 1980 and had neither completed a degree or certificate nor were still in school by February 1984. Thirty-one percent of two-year entrants and 23 percent of four-year entrants were in this category. At both types of schools, students from below-median income families were significantly more likely than higher income students to dropout. But high-income students at two-year schools dropout much more frequently than low-income students at four-year schools. Low-ability students had markedly higher dropout rates than high-ability students at the same type of school, but four-year students in all but the lowest ability quartile had higher persistence rates than any of the two-year students.

Although this evidence is far from conclusive, these data suggest that the type of school attended has a significant impact on dropout rates, given measured ability and income levels. Low-income students who are enabled by financial aid to attend college still face difficulties in completing their educations. But if they are provided access to sufficient resources to attend the college (or type of college) of their choice, those with relatively high abilities and educational aspirations will be successful in earning degrees. In other words, aid should not be so limited as to restrict choice to the lowest-cost community college options. Over the past years, increases in aid funding have reflected wider eligibility and a proliferation of programs more than increased grants for individual recipients (Table 3). Perhaps a focus on providing

Table 12

Dropout Rates by Parental Income,
Two-Year and Four-Year Institutions

Ability Quartile	Parental Income: Less than $12,000	$12,000-19,999	$20,000 or more	Total
Percentage of those entering four-year institutions in Fall 1980 who had dropped out by February 1984				
Lowest	41.8	55.5	44.1	47.1
Second	39.0	28.5	16.1	24.7
Third	33.1	35.8	19.6	25.5
Highest	15.5	15.6	13.6	14.3
Total 4-year	29.7	26.6	16.8	22.6
Percentage of those entering two-year institutions in Fall 1980 who were no longer in school and had not completed a program by February 1984				
Lowest	73.1	60.6	54.6	62.1
Second	54.5	58.4	45.3	52.0
Third	32.9	51.8	34.9	40.9
Highest	37.6	39.1	21.2	28.7
Total 2-year	51.9	52.6	42.2	44.4
TOTAL 2-YEAR 4-YEAR	38.7	38.4	24.0	31.0

Source: High School and Beyond Data, computations by the author.

more generous aid to current recipients would be a more fruitful approach for the future.

The role of measured academic ability in determining both choice and persistence reinforces conclusions of the preceding section. Adding dollars to financial aid programs to increase the number of students using aid may be less effective than strengthening earlier educational opportunities for low-income students and making the aid which is available to individuals more generous in order to allow them a choice of institutions.

IV. CONCLUSION

The application of fairness theory to the college-attendance decision suggests that the role of increased financial aid in increasing enrollments may be limited, since only one-third of those who did not attend college expressed a desire to attend, and many of those may actually have chosen not to attend. It does not appear that low incomes are preventing a significant number of students from acquiring some form of higher education. However, there are no implications for the impact of increased aid on the choice of schools by those who do attend college. There is the potential for increased aid to significantly increase the educational opportunities of low-income students by broadening their choices.

Many students may attend low-cost public institutions instead of elite private institutions because of limited financial resources or other constraints. Thus, if we had defined envy in terms of access to

the college of choice rather than acess to some college, we would surely have found envy to be more prevalent. Extra aid dollars may be better used to increase awards to students already attending low-cost colleges than to try to induce more high school graduates to attend low-cost colleges.

It is important to note that these results raise questions about the impact of unequal opportunities on aspiration formation, as well as the possible endogeneity of academic ability, particularly as measured by standardized testing. One of the problematic characteristics of fairness theory (and thus of its application to public policy) is that it does not take sufficient account of inequalities in opportunities prior to the specific choice in question. This limits the extent to which the theory can generate insight into the impact of any policy on fundamental social inequities. Nonetheless, the fairness analysis does highlight the differences in aspirations among different socioeconomic groups. If society's goal is to raise currently low educational aspirations, new policies and funding for children at earlier stages of development are required.

Notes

[1]See O'Donnell (1985) for an in-depth discussion of this topic.

[2]See Gladieux and Wolanin (1976) for a thorough discussion of the political background of the 1972 legislation.

[3]Appropriations for the GSL and PLUS (auxiliary loans available to parents and students without a needs test, at an interest rate of 14 percent) programs are much smaller than the available funds listed here, since the government provides only the interest subsidy, special allowances for banks, and default guarantees under the loan program. In 1985, for example, GSL and PLUS appropriations combined were about $3.8 billion, but about $8.6 billion of federally guaranteed student loan money was available under these programs.

[4]The expansion has not meant that consistently increasing proportions of college students have received aid, sice enrollments have grown rapidly over the period in question.

[5]This figure is not exact, since available data do not report the numbers of students receiving aid from multiple sources.

[6]Black enrollments in institutions of higher education declined 3.3 percent between 1980 and 1984, although total enrollments grew slightly over this period (American Council on Education, 1986).

[7]Hansen's findings were based on Current Population Survey data and on comparisons of 1972 National Longitudinal Survey data with college expectations expressed in the original 1980 High School and Beyond Survey.

[8]For a recent review of the literature in this area, see Terkla and Jackson, 1984.

[9]See Foley (1967), Feldman and Kirman (1974), Pazner and Schmeidler (1974), Varian (1975, 1976), Pazner (1977), Thompson (1982).

[10]This approach is consistent with Feldman and Kirman (1974) and Pazner and Schmeidler (1974).

[11]If it were possible to use a cardinal measure of utility, it would be useful to measure the strength of individual aspirations. Our inability to do so leads to the possibility of some unappealing results. It might be possible, for example, to reduce the number of cases of general envy by transferring resources from the poorest person to the second richest person, eliminating the latter as an envier. Such a solution is, however, less likely when only one particular commodity is being considered.

[12]It may be more realistic to view less well-prepared students as expecting smaller benefits, as compared to better-prepared students, from a postsecondary education. From either perspective, the expected benefit/cost ratio is lower for students with lower measured ability.

[13]By definition, if higher education lies outside an individual's feasible set, he cannot attend college. However, there may be some individuals who prefer the bundle they have chosen to some bundles which lie outside their feasible sets. That is, they cannot afford higher education, but would not consume it even if it were available. We ignore this group.

[14]Estimation of the differential prices discussed is left for future research.

[15]The insignificant number of students who said they did not want to go to college but were later observed to attend are not considered here.

[16]Only a small number of individuals responded positively to one of these questions and negatively to the other.

[17]The sample with which I am working, which includes only those students whose parents provided information, is somewhat different from the full follow-up survey sample. Students in the "parents" sample are less likely to be married (7 percent as opposed to 10 percent). The "parents" sample is more likely to be white (77.3 percent versus 63 percent for the entire sample) and somewhat more likely to be female (56.9 percent versus 53.5 percent).

[18]While this test claims to measure "academic ability," it is clearly more a test of achievement levels for high school seniors than of innate ability. If it is an indicator of academic preparedness for college it may, however, be a reasonable test of ability to perform in college, given previous educational backgrounds.

[19]I assume that all high school graduates are capable of attending some institution of higher learning. The open admissions policies of many junior and community colleges and the more lenient requirements at many schools for part-time attendance make this a reasonable assumption.

[20]In 1983, 40 percent of GSL dollars went to students with incomes below $15,000 in 1982 dollars. Another 27 percent went to those in the $15,000-$30,000 income bracket (College Entrance Examination Board, 1986a).

[21]Multivariate regression analysis to further clarify these issues will be part of the continuation of this research.

[22]This conclusion might be modified by evidence on the ability distribution of aid-induced attendees. Since demand for college is most price elastic among moderate-ability students (Bishop, 1977), they are probably most heavily represented in the induced group. In our sample, four-year/two-year attendance patterns differ considerably between the second and third ability quintiles.

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